Rapeseed oil from AAK
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Rapeseed oil is often compared with olive oil, which is considered one of the most healthy oils. AAK has a wide range of rapeseed oils. Local seed suppliers and in-house processing enable AAK to offer oils from both traditional seeds and a range of speciality variants.

An excellent nutritional profile
In both conventional and new varieties with a high oleic acid content, rapeseed oil has the lowest proportion of saturated fats of all vegetable oils. It also contains essential fatty acids; linoleic acid (Omega 6) and alpha-linolenic acid (Omega 3), as well as vitamin E (tocopherol) and vitamin K. Rapeseed oil is unique with a high content of monounsaturated fatty acids and a wide range of application possibilities.

The oil is used both as cooking oil and as an ingredient in different food products. The nutritional benefits are important, and so are the functional properties of rapeseed oil. Applications range from mayonnaise and salad dressings to baby food. In margarines and bakery products, the rapeseed oil ensure the right consistency and good nutritional values.

At high temperatures, HO varieties of rapeseed are significantly more suitable. The advantages are a low saturated fat content together with good thermal and storage stability.

Typical fatty acid composition (%) for AAK rapeseed oils

<table>
<thead>
<tr>
<th>Type of oil</th>
<th>Standard</th>
<th>Swedish-pressed</th>
<th>Organic</th>
<th>High oleic acid type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name</td>
<td>Rapeseed oil</td>
<td>Swedish-pressed Lobra</td>
<td>Akogreen R</td>
<td>Fritex HORO</td>
</tr>
<tr>
<td>Saturated</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Monounsaturated</td>
<td>64</td>
<td>64</td>
<td>65</td>
<td>77</td>
</tr>
<tr>
<td>Polyunsaturated</td>
<td>29</td>
<td>29</td>
<td>27</td>
<td>16</td>
</tr>
<tr>
<td>Omega-6</td>
<td>20.5</td>
<td>19.5</td>
<td>19.5</td>
<td>14</td>
</tr>
<tr>
<td>Omega-3</td>
<td>8.5</td>
<td>9.5</td>
<td>7.5</td>
<td>2</td>
</tr>
</tbody>
</table>
Grown in Sweden
The main part of AAK’s rapeseeds are grown in Sweden. However, this supply does not cover all needs, hence imported seed is also used. In recent years, Swedish farms have increased their rapeseed output. Close corporation with farmers enables AAK to offer a large proportion of rapeseed oil of Swedish origin. This gives control over the entire value chain, from production of raw material to finished products.

AAK has a continuous flow of rapeseed oil through the plant, where the oils are directly loaded for bulk truck delivery to our customers. For packaged rapeseed oil AAK has a range of options on the shelf.

Swedish rapeseed oil – better for the climate
A life-cycle analysis (LCA) study were carried out by SIK 2008, comparing palm, soya bean and rapeseed oil. The study shows that the greatest environmental impact from vegetable oils was found to come at the cultivation stage. Transportation and industrial production played a lesser role. This is a significant finding, since in the climate debate, transportation is often singled out as one of the major sources of emissions. Soyabean oil from South America exemplifies this, as shown in Figure 1 below.

Estimates of greenhouse gas emissions showed that Swedish-sourced rapeseed oil is a better choice than soyabean and palm oil for the climate, as can be seen in Figure 2. Palm oil, which came out best in earlier LCA studies, can show up to fivefold variation in values depending on place of cultivation and extraction process.

Cultivation conditions can vary widely for a single raw material. The study was partly aimed at establishing how significant a factor this might be.

For rapeseed oil, it highlighted some interesting differences, to the advantage of Swedish rapeseed oil.

Figure 3 shows that greenhouse gases are significantly lower for oil from Swedish-grown rapeseed than for German-grown. This reflects the more intensive nature of German cultivation, with greater use of fertilizer. German-cultivated rapeseed achieves a higher yield per hectare, but the amount of greenhouse gases per tonne of oil is greater.

Contracting farming in Sweden
High oleic acid (HO) rapeseed is a speciality oil. Like conventional rapeseed, it can be successfully grown in northern Europe. HO rapeseed is one of the raw materials that are grown under contract for AAK.

AAK has been working with HO since the 1990s, in particular sunflower oil. The HO oils have emerged through conventional plant breeding – not from genetic modification.

Production of HO rapeseed has previously been limited. It is only recently that varieties have been developed which are suitable for cultivation in Sweden, and which have a yield that farmers find acceptable. In order to have a locally produced seeds, and all the advantages that come with that, AAK is contracting Swedish farmers for production of HO rapeseed. This means that traceability is assured throughout the value chain.

As there is no established market with regular buyers and sellers of HO oils planning is of the outmost importance. The lead time for securing supplies of the raw material is around 1½ years, which means long planning horizon.

Environmental impact

![Figure 1. Almost the whole contribution to greenhouse gases from soyabean oil comes from growing the crop](image1)

![Figure 2. Greenhouse gas emissions](image2)

![Figure 3. Lower greenhouse gas emissions with rapeseed from Sweden](image3)
Raw Material Trade
Crude degummed rapeseed oil is quoted daily on the raw material market in Rotterdam, in EUR, Cif Rotterdam. Price are available at the AAK Customer Centre.

Product Range

Rapeseed oil
This is the standard-quality product, obtained by pressing and extraction – the normal European standard. Rapeseed oil from AAK has a neutral taste and excellent shelf life.

Swedish-pressed Lobra
This oil is obtained by pressing Swedish-grown seed. Kept separate throughout the processing, it is marketed as Swedish-pressed Lobra.

Because of the colder climate, the Swedish oil contains a higher Omega 3 content than oil from elsewhere in Europe. Careful processing and high precision throughout the production gives an oil with optimal taste and shelf life, as well as a high natural vitamin E content.

Akogreen R Organic Rapeseed Oil
The trend in the food market in Europe is clearly toward organic-products. The number of newly launched products containing organic oil has increased dramatically. AAK's Akogreen R organic rapeseed oil is obtained from European seeds, as cultivation of organic rapeseed is limited in Sweden.

Akogreen R is a multifunctional, nutritious oil, liquid at room temperature. It is a recognised organic oil with both KRAV and SKAL certification.

Fritex HORO High Oleic Acid Rapeseed Oil
Improvement of nutritional profiles has become increasingly important to customers. Fritex HORO combines high oxidation stability with the lowest saturated fat content on the vegetable oil market. This makes it an excellent deep frying oil in terms of both functionality and nutrient content.

Deep frying oil is one of the most demanding applications and has a extremely tough oxidation stress.

Producers of fried products can make their products healthier by fully or partially replacing the oil they currently use with Fritex HORO. This enables a reduction of up to 80 % in the amount of saturated fat in the finished product, with keep quality.

HO rapeseed oil can also be used in baby food blends and other applications with specific requirements regarding fatty acid composition.

Packaging
AAK can offer a wide range of packaging solutions. Please see the table below for options available for each product.

Big volume buyers, of both rapeseed oil and other bulk products, can use AAK's Vendor Management Inventory (VMI) service, in which all the customer needs is measuring equipment on the tanks and an Internet connection. In this way, AAK is committed to ensure that customers always have their oil needs fully met, at any time and for whatever application.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Raw material</th>
<th>Raw</th>
<th>Swedish-pressed Lobra</th>
<th>Akogreen R</th>
<th>Fritex HORO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapeseed oil</td>
<td>Rapeseed</td>
<td></td>
<td></td>
<td>Organically grown rapeseed</td>
<td>Rapeseed rich in oleic acid</td>
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<tr>
<td>Origin</td>
<td>Sweden and Europe</td>
<td>Sweden</td>
<td>Sweden and Sweden</td>
<td>Sweden and Europe</td>
<td></td>
</tr>
<tr>
<td>Processing</td>
<td>Pressing and extraction</td>
<td>Pressing</td>
<td>Pressing</td>
<td>Pressing and extraction</td>
<td></td>
</tr>
<tr>
<td>Packaging</td>
<td>Bulk 900 kg container 190 kg drum</td>
<td>Bulk 900 kg container 190 kg drum</td>
<td>Bulk 900 kg container 190 kg drum</td>
<td>Bulk 900 kg container 190 kg drum</td>
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</tbody>
</table>

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